

TOWNSHIP FIRE DEPARTMENT CHAPTER 3: SUGGESTED OPERATING GUIDELINES

Part 1: Maintenance and Repair Guidelines

Subject: SCBA Inspections, Maintenance, and Function Testing

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Section: 3-1-2

Effective Date: 01/22/07

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- 2.01 Purpose. To provide guidelines for the maintenance and care of SCBA including inspecting, function testing and record keeping.
- 2.02 Goal. These guidelines will be in effect for all members of Township Fire Department, Inc.
- 2.03 Definitions.
- A) Clear Command Communication System. Internally mounted microphone coupled with an amplifier for optimal voice clarity and volume.
 - B) HUD. Heads-Up-Display. The HUD is mounted on the facepiece and displays the cylinder pressure in 25% increments.
 - C) ICM Tx Unit. Integrated Control Module Transmitter with integrated PASS device.
 - D) LEDs. Light Emitting Diodes.
 - E) MMR. Mask Mounted Regulator.
 - F) SCBA. Self Contained Breathing Apparatus.
 - G) STC Regulator. Slide-To-Connect mask mounted regulator.
 - H) URC. Universal Rescue Connection is a male quick fill inlet.
- 2.04 SCBA INSPECTIONS (after Each use and Monthly)

Do not inspect the SCBA if there is a danger of contacting hazardous contaminants. Clean and disinfect first, then inspect.

MMR AIR MASK

1. Remove the facepiece from the storage bag.
2. Inspect the facepiece for rubber deterioration, dirt, cracks, tears, holes, or tackiness.

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3. Check the harness head straps for breaks, loss of elasticity, or missing buckles or straps. Check the straps for signs of wear.
4. Inspect the lens for cracks, scratches, and a tight seal with the facepiece rubber.
5. The exhalation valve must be clean and operate easily. The valve must move off the seat and return when released.
6. Check that the regulator sealing ring is seated properly in its groove, and that it is not torn, gouged, or nicked.
7. Inspect the NightFighter Heads-Up Display System receiver module. Look for cracks or other signs of damage that could allow contaminants to enter the module housing.
8. Inspect the Clear Command Communications System module. Look for cracks or other signs of damage that could allow contaminants to enter the module housing. Check out the system functions.
 - a. Depress the on/off button on the Clear Command Communications System unit and then release it to turn the unit ON.
 - b. The red LED should be illuminated at the top of the amplifier unit.
 - c. Scrape your fingernail lightly across the voicemitter microphone grille of the voicemitter microphone assembly.
 - d. You should hear this sound reproduced in the amplifier speaker.
 - e. Depress and release the on/off button again to turn the unit OFF. The LED on the amplifier unit should be OFF.
9. Make sure the harness head straps are fully extended before returning to service.

SCBA CYLINDER

1. Inspect the cylinder body for cracks, dents, weakened areas, corrosive agents causing the fibers to break or peel, or signs of heat-related damage.
 - a. Cylinders which show evidence of exposures to high heat or flame, e.g. paint turned to brown or black color, decals charred or missing, gauge lens melted, or elastomeric materials distorted, shall be removed from service and re-hydro tested prior to returning to service.
2. Inspect the cylinder valve for signs of damage. The valve may be opened slightly to be sure it operates properly, **be sure the cylinder is secured**. And then fully close the valve.
3. Be sure you can see the cylinder gauge needle and face clearly through the lens. Also be sure the cylinder gauge stem is not bent.
4. If the cylinder is less than FULL, recharge it before storing it. Before filling, check the hydrostatic test date on the cylinder approval sticker. Do not refill cylinder if the hydrostatic test date is past due. TFD's Stealth cylinders (both the 2216 psi and 4500 psi) must be tested every five years.

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CARRIER AND HARNESS

1. Inspect all harness components for cuts, tears, abrasions, or signs of heat or chemical-related damage.
2. Check that the tee nuts, washers, and screws, if any, are secure.
3. Inspect the cylinder band and latch to be sure it holds the cylinder securely. Operate the latch wing to be sure that it opens and closes properly and that it holds the cylinder securely. If the cylinder band and latch is locked, the latch wing should not turn.
4. Inspect back plate for cracks, weakened areas or signs of heat or chemical related damages.
5. Unscrew the Audible Alarm with the URC Assembly coupling nut from the cylinder valve. Inspect the coupling nut for thread damage. Also be sure there is an O-ring, and that it is not damaged.
6. Reattach the Audible Alarm with the URC Assembly coupling nut making sure the bell is in the proper alignment and on tightly.
7. Check Audible Alarm with URC Assembly and URC Assembly relief valve for damage.
8. Check relief valve label for damage. Check for missing or lose label. Ensure that relief valve ports are showing. If any damage remove SCBA from service.
9. Check the high-pressure hose between the Audible alarm and the first stage regulator. Look for cuts or severe abrasions. If present, remove SCBA from service. The hose fittings should be tight.
10. Inspect the first stage regulator.
 - a. Inspect the regulator mounting brackets for cracks, weakened areas or signs of heat or chemical-related damage.
 - b. Inspect the regulator mounting bracket screws to verify they are secure.
 - c. Inspect the regulator mounting bracket to verify that it holds the regulator securely.
 - d. Inspect the regulator seal ring to verify that it is present and properly seated. Inspect the seal ring for rubber deterioration, dirt, cracks, tears, holes, or tackiness.
 - e. Inspect the pressure relief valve. Verify that the relief holes are clear and free of debris or other contamination. Verify that the pressure relief valve is properly secured.
11. Check the hose between the first stage regulator and the second stage regulator (the Slide To Connect STC facepiece regulator). Look for cuts or severe abrasions. If present, remove from service.
12. Inspect the STC facepiece regulator for damage.
13. Make sure the harness straps are fully extended before returning to service.

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ICM TX UNIT

1. Check for external cracks in the case or housing.
2. Check for missing screws or loose covers.
3. Check for signs of leaking covers or water retention in the case.
4. Check rubber cover for damage.
5. Check for damaged or missing buttons on the unit.
6. Check for any visible signs of damage to components.

RESCUE BELT

1. Inspect all waist belt webbing for wear or damage.
2. Inspect all hardware for burrs, cracks, wear or other damage. Ensure the locking hook and carabiner open and close properly.
3. Make sure waist belt is fully extended before returning to service.

*FOR ADDITIONAL INSPECTION INFORMATION REFER TO THE MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS. **DOCUMENT ALL INSPECTIONS.***

2.05 SCBA CLEANING AND DISINFECTING

GENERAL STATEMENT

In general, only the facepiece requires cleaning and disinfecting after each use. If the use was light or casual (i.e. fit testing, monthly inspections) use of a respirator wipe pad will be sufficient. All other uses will require cleaning and disinfecting of the facepiece and its components (i.e. Heads-up Display, Clear Command) with Confidence Plus Cleaning Solution and water.

WARNINGS

1. SCBA components contaminated by chemical or radioactive materials must be decontaminated or disposed of according to all applicable standards.
2. Do not force dry the SCBA components by placing them in a heater or in direct sunlight. Allow the components to naturally air dry or utilize one of the air blowers designed for the purpose.
3. Alcohol should NOT be used as a germicide because it may deteriorate rubber parts.
4. Do NOT use any cleaning substances that can or might attack any part of the SCBA components.
5. Thoroughly dry the facepiece and regulator after cleaning and disinfecting.

PREPARING SOLUTION

Prepare a cleaning solution by adding Confidence Plus Cleaning Solution to water. Follow the instructions on the Confidence Plus Cleaning Solution container for mixing directions and recommended times as well as safety precautions.

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ICM Tx UNIT AND NIGHTFIGHTER HEADS-UP DISPLAY SYSTEM

1. The ICM Tx Unit and the NightFighter Receiver should be cleaned and disinfected after each use with a damp cloth containing Confidence Plus Cleaning Solution. *DO NOT USE CLEANING SOLVENTS.*
2. The NightFighter Receiver should be removed from the facepiece to be cleaned. Unthread the thumbscrew of the Receiver and slide the receiver from the facepiece bracket.
3. Although the ICM Tx Unit and the NightFighter Heads-Up Display are water resistant, never submerge them in water or any other liquid.
4. Clean by wiping with a damp sponge or cloth containing Confidence Plus Cleaning Solution and water.

CLEARCOMMAND AMPLIFIER

1. The Clear Command Amplifier should be cleaned after each use.
2. The Clear Command Amplifier should be removed from the facepiece to be cleaned. Unscrew the thumbscrew and disconnect the amplifier.
3. Although the Amplifier is water resistant, never submerge the Clear Command Amplifier in water or any other liquid.
4. Clean by wiping with a damp sponge or cloth containing Confidence Plus Cleaning Solution and water.

FACEPIECE

1. Thoroughly wash the facepiece and nose cup in the cleaning solution. The nose cup does not need to be removed from the facepiece unless there are foreign objects stuck in the nose cup.
2. A soft brush or sponge can be used to clean the soiled facepiece.
3. Make sure to clean the exhalation valve by pressing in on the stem allowing the cleaning solution to run through.
4. Thoroughly rinse the facepiece, nose cup and exhalation valve in clean warm (110°F) water (preferably running and drained). If not rinsed thoroughly, cleaning agent residue may irritate the wearer's skin.
5. Before putting the facepiece back into service operate the exhalation valve to be sure it works properly.
6. Make sure the harness head straps are fully extended before returning to service.

CARRIER AND HARNESS

If the Carrier and Harness are soiled (i.e. heavy smoke residue or dirt accumulations) use a damp sponge damp with a mild soap and water, approved gear cleaning soap and water, or use a soft/medium bristle brush to remove deposits that may interfere with normal operation of:

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- a. Harness (straps and buckles)
- b. Cylinder carrier (band and latch assembly)
- c. Cylinder (handwheel, gauge, outlet connection)
- d. Audi-Alarm with URC Assembly (bell or coupling nut connection)
- e. NightFighter Heads-Up Display System/Pressure Gauge/ICM Unit Gauge
- f. First stage regulator
- g. MMR second stage regulator. Cover outlet of the MMR second stage regulator to prevent water, dirt, or debris from entering.
- h. Make sure the harness straps are fully extended before returning to service.

RESCUE BELT

If the Rescue Belt is soiled (i.e. heavy smoke residue or dirt accumulations) clean with mild soap and water.

1. Do not use bleach or harsh chemicals to clean the Rescue Belt or any of its components.
2. Allow the Rescue Belt to air dry. Do not dry with heat or UV sources.
3. Make sure waist belt is fully extended before returning to service.

*FOR ADDITIONAL CLEANING AND DISINFECTING INFORMATION REFER TO THE MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS. **DOCUMENT ALL CLEANING AND DISINFECTING.***

2.06 SCBA FUNCTIONAL CHECKS (Monthly)

1. Don the SCBA facepiece following the instructions in the SCBA User's Instruction Manual.
2. Slowly open the cylinder valve and check:
 - a. The Audible Alarm bell rings briefly
 - b. The ICM Tx Unit Gauge Tones
3. Look through the facepiece lens at the LED panel, the LED's should illuminate through the following startup sequence as the SCBA is pressurized:
 - a. Four Green LED's ON/OFF (76% - 100% Full Cylinder)
 - b. Three Green LED's ON/OFF (75% - 51% $\frac{3}{4}$ Full Cylinder)
 - c. Two Yellow LED's ON/OFF (26.1% - 50% $\frac{1}{2}$ Full Cylinder)
 - d. One Red LED ON/OFF (25% - 0% $\frac{1}{4}$ Full Cylinder)
 - e. One Yellow LED ON/OFF (Low Battery LED for Receiver/Transmitter)
 - f. Current cylinder pressure.
4. Look to verify that the GREEN light on the ICM Tx Unit is slowly flashing.
5. Stand motionless for approximately 20 seconds. Listen for pre-alarm to sound the low volume repeated tones. Look for the RED light on the ICM Tx Unit to alternately flash slowly.

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6. Remain motionless until the full alarm activates. Listen for the alarm to sound the increasing loud repeated tones. Look for the light to flash RED rapidly.
7. Reset the ICM Tx Unit by pushing the RESET button on the side of the unit 2 times within approximately 1 second.
8. To check manual activation of the full alarm, push and HOLD the alarm button on the front of the unit.
9. Reset the Alarm. Press RESET button 2 times within approximately 1 second.
10. Stand motionless until the pre-alarm sounds. Shake unit to reset the alarm.
11. Install the STC regulator following the instructions in the SCBA User's Instruction Manual.
 - a. Inhale sharply to start the airflow. Breathe normally.
 - b. Verify proper regulator response. The regulator should not make any unusual sounds including whistling, chattering, or popping.
 - c. Remove the facepiece from the face. Verify that air moves freely.
 - d. Push the regulator release buttons. Verify that airflow stops.
12. Close cylinder valve. Check the NightFighter Heads-Up Display System, ICM Tx Unit and Cylinder Gauges. They should be within 225 psig for the 4500-psig cylinders.
13. Watch remote gauge for drop in pressure reading, which would indicate leakage. If the pressure drops more than 100 psig in 10 seconds take the SCBA out-of-service.
14. Check for STC regulator bypass operation. Open the bypass to release system pressure. Verify airflow.
15. When the pressure drops low enough (approximately 1175 psig) you should witness the Audible Alarm will ring, the ICM Tx Unit Gauge will light and tone, and the Heads-Up Display will light.
16. When pressure is bleed from the system, turn the ICM Unit OFF.
17. The NightFighter Heads-Up Display system will automatically turn itself OFF, (A single red light will flash during this time prior to the automatic shutdown).
18. Make sure all straps are fully extended before returning the equipment to service.

*FOR ADDITIONAL FUNCTIONAL TEST INFORMATION REFER TO THE MANUFACTURER'S OPERATION AND MAINTENANCE INSTRUCTIONS. **DOCUMENT ALL FUNCTION TESTS.***